

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE FIRST QUARTER 2006

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

The total production during the first quarter of 2006 was estimated to be 5,000 metric tons of regular-grade crude fused aluminum oxide with an estimated value of \$1.5 million. Only one company, which operates one plant in Canada, produced fused aluminum oxide. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide for 2006 through the month of February were 27,300 tons valued at \$10.3 million, or an average of \$377 per ton. About 64% of the imports came from China, 31% from Venezuela, 4% from Canada, and less than 1% from other countries. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide for 2006 through the month of February were 6,340 tons valued at \$7.28 million, or an average of \$1,150 per ton.

U.S. exports of fused aluminum oxide for 2006 through the month of February were 2,070 tons. The exports were valued at \$5.25 million, or \$2,530 per ton. Canada received 27% of the exports that were shipped; Germany, 21%; Japan, 15%; Mexico, 13%; the United Kingdom, 5%; and others, 19%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS), but all of the NDS aluminum oxide has been authorized by law for disposal. During the first quarter of 2006, the Department of Defense held one sale of fused aluminum oxide abrasive grain. The sale totaled 875 million metric tons with a value of \$0.38 million. NDS reported that 5,351 tons of fused aluminum oxide abrasive grain with an estimated value of \$2.0 million remained in the

stockpile. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., May 16, 2006). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current authorized disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain could be sold by the end of 2006.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the first quarter of 2006 was estimated to be 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$4.9 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for 2006 through the month of February were 23,400 tons valued at \$11.8 million; imports from China alone were 18,600 tons valued at \$9.07 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$567 per ton; the average price of Chinese crude was \$487 per ton. U.S. imports of refined and ground silicon carbide for the same period were 5,830 tons valued at \$7.16 million, or an average of \$1,230 per ton. During the period, China accounted for 80% of the crude material and 29% of the refined and ground material.

U.S. exports of crude silicon carbide for 2006 through the month of February were reported to be 1,430 tons with a value of \$1.73 million. Exports of refined and ground silicon carbide were 2,290 tons valued at \$2.58 million. About 98% of the crude material was shipped to, in decreasing order, Norway, Finland, Germany, and Mexico. About 99% of the refined material went to, in decreasing order, Canada, Norway, Germany, Mexico, and Japan.

The NDS has sold all of the silicon carbide in the stockpile. No further stockpiling is anticipated.

Metallic Abrasives

Metallic abrasives information was collected from 12 companies operating 13 U.S. plants. During the first quarter of

2006, five companies produced 54,700 tons of steel shot and grit, a slight increase, compared with the same period in 2005. At least one of the companies produced shot and grit from reclaimed material. Total first quarter 2006 production was valued at \$25.0 million, or an average of \$457 per ton. Total annual production in 2005 was 207,000 tons valued at \$94.4 million; 2004 production was 193,000 tons valued at \$87.8 million; 2003 production was 192,000 tons valued at \$86.2 million; 2002 production was 201,000 tons valued at \$91 million.

Shipments of steel shot and grit in the first quarter of 2006 were 57,900 tons valued at \$28.1 million, or an average of \$486 per ton, compared with shipments during the first quarter of

2005, which were 56,400 tons valued at \$27.4 million for an average of \$486 per ton.

During the first quarter, seven companies produced 640 tons of other types of metallic shot and grit (primarily cut wire shot) valued at \$1.89 million.

Imports of all types of metallic shot and grit for 2006 through the month of February were 3,230 tons valued at \$2.24 million for an average of \$695 per ton. Canada was the largest supplier, accounting for 72% of the tonnage imported.

Exports of all types of metallic abrasives for 2006 through the month of February were 4,270 tons valued at \$3.48 million, or an average of \$814 per ton. Shipments to Mexico accounted for 43% of the exports; an additional 41% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons, unless otherwise specified)

Source and product	2005								2006	
	First quarter		Second quarter		Third quarter		Fourth quarter		First quarter	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
United States and Canada, production: ²										
Silicon carbide ³	10,000	\$4,900	10,000	\$4,900	10,000	\$4,900	10,000	\$4,900	10,000	\$4,900
Crude aluminum oxide, regular-grade	5,000	1,500	5,000	1,500	5,000	1,500	5,000	1,500	5,000	1,500
United States, production:										
Steel shot and grit	53,100	24,300	51,000	23,400	52,500	23,800	50,300	22,900	54,700	25,000
Other shot and grit ^{e, 4}	451	1,460	609	2,230	539	1,830	517	1,640	640	1,890
Total	53,500	25,700	51,600	25,600	53,100	25,600	50,800	24,500	55,400	26,900
United States, shipments:										
Steel shot and grit	56,400	27,400	55,600	26,900	57,000	27,300	55,200	26,600	57,900	28,100
Other shot and grit ^{e, 4}	480	1,720	583	2,090	523	1,870	559	1,910	610	2,180
Total	56,900	29,200	56,200	29,000	57,500	29,200	55,800	28,500	58,600	30,300

^eEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Includes cut wire shot and reclaimed shot and grit from primary producers.